
Remarks

The Advisory Action mailed 23 January 2003 following the submittal of a Response on 3 January 2003 to a Final Office Action mailed 5 November 2002 has been received and reviewed. Claims 1, 3, 9, 13-14, 19, 21, 23-24, 27-29, and 33-40 have been amended. Claims 1, 3-5, 7-21, 23-25 and 27-51 are pending. Reconsideration and withdrawal of the rejections are respectfully requested.

Request for Examiner Interview Prior to Disposition of Case

It would appear that the Examiner and Applicant have a different opinion with regard to the cited references. It is requested that the Examiner contact Applicants' Representatives, at the below-listed telephone number, to discuss the prosecution of this application when it is taken up for consideration. Applicant will be in contact with the Examiner immediately following the filing of a Request for Continued Examination in this matter.

Drawings

Applicants continue to respectfully request consideration and approval of amended Figures 3 and 11, submitted with Applicants' response to the 7 November 2001 Office Action.

Claims

Applicants have amended certain claims for consistency. The amendments are intended to clarify the claims, however, the scope of the claims is intended to be the same after the amendment as it was before the amendment.

The 35 U.S.C. '103 Rejection

Claims 1, 3-5, 7-13, 15-17, 19, 21, 23-25, 27-33, 35-38, 40-41, and 43-51

The Examiner rejected claims 1, 3-5, 7-13, 15-17, 19, 21, 23-25, 27-33, 35-38, 40-41, and 43-51 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 4,675,147 to Schaefer *et al.* (hereinafter "Schaefer") in view of U.S. Patent No. 5,375,199 to Harrow *et al.* (hereinafter "Harrow"). Applicants respectfully traverse the rejection of the claims and believe that the previously filed responses overcome the Examiner's rejections and as such these responses are incorporated by reference herein. In addition, the following remarks are provided.

In each of independent claims 1, 21, 40, 43, 47, and 51, Applicants teach a computer implemented graphical user display and/or method for providing real-time process information to a user for a process that is operable under control of one or more process variables. The one or more process variables include high and low process limit values associated therewith. The graphical user display includes one or more graphical devices, where each graphical device corresponds to a process variable. The graphical device for a corresponding process variable includes a display of a gauge axis and a first and second pair of high and low elements. The first pair of high and low limit elements are representative of engineering hard high and low limit values for the corresponding process variable. The second pair of high and low limit elements are representative of operator set high and low limit values for the corresponding process variable, where the first and second pair of high and low limit elements are displayed on the gauge axis. A graphical shape is displayed along the gauge axis representative of a value of the corresponding process variable relative to the process limit values.

The terms used in the claims must be read as defined in the specification. For example, the following description is given for various "limit" terms:

> As used herein, engineering physical limit values refer to limit values that define the physical limits of a piece of equipment or instrumentation. They represent the widest

possible range of meaningful quantification of a process variable. For example, there may be engineering physical limits to measurements that a sensor may be able to provide.

As used herein, engineering hard limit values are those limit values set by a user, particularly a control engineer, to establish a range over which an operator or another user can safely set operator set limit values.

As used herein, operator set limit values are limit values through which operators exert influence on the controller 14. Such limits establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom.

Lastly, as used herein, optimization soft limits, or otherwise referred to herein as delta soft bands, are pseudo limits describing an offset within the operator set limits that the optimization calculations will attempt to respect.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations.

The Examiner continues to give no weight to the meaning of the claim limitations, particularly, for example, the first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low limit elements representative of operator set high and low limit values for the corresponding process variable.

Applicants respectfully submit that Schaefer and Harrow fail to teach or suggest all the claim limitations of the independent claims 1, 21, 40, 43, 47, and 51. For example, Schaefer and Harrow fail to teach or suggest displaying a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable **and** a second pair of high and low limit elements representative of operator set high and low limit values for the corresponding process variable, as recited in each of such claims.

The Examiner recognizes that Schaefer does not show a second pair of high and low limit elements representative of operator set high and low limit values. However, the Examiner relies on Harrow to provide such elements.

However, Harrow only provides an alarm range at the upper operator limit for a variable being monitored (e.g., CRC errors per hour). Harrow does not show "operator set high and low limit values." The limits discussed in Harrow are clearly only focused on a single operator limit (i.e., a high limit designated as line 204) for a variable (e.g., CRC errors per hour). In other words, the values in Harrow which according to the Examiner teach the operator set high and low limit values are only pertinent to a single operator limit and an alarm range associated therewith, and not operator set high and low limit values.

Contrary to Harrow, the present invention provides the second pair of high and low limit elements representative of operator set high and low limit values. As defined in the specification, such operator set limit values are limit values through which operators exert influence on the controller. Such limits establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom. The operator set limit values fall within a range established by the engineering hard limit values. In other words, the engineering hard limit values are those limit values set by a user, particularly a control engineer, to establish a range over which an operator or another user can safely set operator set limit values.

As such, Schaefer and Harrow fail to teach or suggest, besides other things, <u>both</u> a first pair of high and low limit elements representative of engineering hard high and low limit values and a second pair of high and low limit elements representative of operator set high and low limit values for a corresponding process variable, as recited in each independent claim.

Further, as previously presented to the Examiner, there is no teaching or suggestion in either of the references that would motivate one skilled in the art to make a modification to Schaefer using the teachings of Harrow as alleged by the Examiner so as to arrive at the present invention. The Examiner alleges that it would have been obvious to one skilled in the art, having

the teachings of Schaeffer and Harrow before them to modify the gauge axis and the graphical shape taught by Schaefer to include the user defining high and low limits of Harrow "in order to enhance users to understand the variable base on graphical indication effectively," as taught by Harrow.

However, as explained above, Harrow does not show user defined operator high and low limits as indicated by the Examiner. If Schaefer was to be modified by the teachings of Harrow, the most that is taught, is the expansion of one of the upper limits such that another activity could be controlled thereby (e.g., an alarm such as described in Harrow).

For example, consider the upper limit number 18 in Figure 1 of Schaefer. If Schaefer was to be modified by Harrow, only another value on line 1 would appear to determine when an alarm condition for the variable associated with the number 18 would exist. In other words, the upper limit 18 would be expanded to provide an alarm range of values extending from the upper limit 18. Contrary to the present invention, Harrow does not show the addition of another set of operator limits within the engineering hard limits that establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom as described according to the present invention. To allege that the combination of Schaefer and Harrow teach anything more is clearly unsupported by the cited references.

For at least the above reasons, independent claims 1, 21, 40, 43, 47, and 51 are not obvious in view of the cited references.

With respect to claims 3-5, 7-13, 15-17, 19, 23-25, 27-33, 35-38, 41, 44-46, and 48-50, Applicants respectfully submit that these claims are also patentable as further limitations of respective patentable base independent claims from which they directly or indirectly depend. Furthermore, such claims are each patentable over Schaefer and Harrow based on the subject matter recited respectively therein. For example, the arguments presented in the response to the previous office action are incorporated by reference herein. In addition, for example, various

remarks are further provided below with respect to many of such claims that continue to be rejected.

With respect to claims 7 and 27, the Examiner asserts Schaefer et al. demonstrates the claimed elements. Applicants respectfully traverse these assertions. There is nothing in the specification that would show the graphical shape positioned adjacent one of the pair of high and low limit elements when the value for the corresponding process variable is within a certain range of the engineering hard high/low limits.

Further, the Examiner indicates that the adjacent position is inherent. A *prima facie* case of inherency can be rebutted by evidence showing that the prior art does not <u>necessarily</u> possess the characteristics of the claimed limitations. Under the principles of inherency, if the prior art, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. The fact that a certain result or characteristic <u>may</u> occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *See In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art) (see M.P.E.P §2112).

In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic <u>necessarily</u> flows from the teachings of the applied prior art. (M.P.E.P §2112). It is respectfully submitted that the Examiner has not met the burden of providing a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic <u>necessarily</u> flows from the teachings of the cited documents. In other words, Applicant submits that the position of the graphical shape as alleged by the Examiner does not <u>necessarily</u> flow from the teachings of the cited documents; various other positions or manners of

---

showing that the value for the corresponding process variable is within a certain range of the engineering hard high/low limits.

With respect to claims 9 and 29, the Examiner asserts that Schaefer shows such elements in, for example, Figures 5 and 6 and other text. However, the graphical symbol used in Schaefer appears to always be a single short dash. As such, it is not understood how this graphical shape is capable of representing an optimization characteristic when it is always the same. If the Examiner is referring to the entire polygon shape as being the graphical symbol, this is also inappropriate as the polygon symbol is not representative of an associated process variable, but the state of the system.

With respect to claims 10, 11, 30, 31, 44-45, and 48-49, the Examiner states Schaefer et al. shows the graphical user display of claim 9, wherein the graphical symbol is representative of a corresponding process variable to be maximized and the graphical symbol is representative of a corresponding process variable to be maximized. (column 17, lines 4-17) Applicants respectfully traverse these assertions . Column 17, lines 4-17 of Schaefer recite a "flow chart for the iconic program which utilizes the data developed in the preceeding [*sic*] programs to generate the displays on the visual display units 57 and 58 . . . [where] [i]f the iconic or top level display has not been selected for display has not been selected for display on any of the visual display units . . . the remainder of the iconic program is not needed and is therefore not run . . . [a]ssuming that at least one observer is calling for the top level display, a determination is made in block 101 whether a reactor trip has occurred while the terminate . . . ."

Applicants respectfully submit the cited section of Schaefer, or any portion of Schaefer, fails to teach or suggest either a graphical symbol representative of a corresponding process variable to be maximized or to be minimized, as recited in such claims. The Examiner states that certain variables can be maximized and minimized. However, nothing in Schaefer shows a graphical symbol representative of the variables to be maximized or minimized.

With respect to claims 12, 32, 46, and 50, the Examiner alleges Schaefer discloses the graphical symbol is representative of a corresponding process variable to be held at a resting value at column 13, lines 1-20. Applicant respectfully traverses such assertions and in response asserts that no such graphical symbol provides such a representation.

With respect to claims 13 and 33, the Examiner alleges Schaefer discloses the graphical symbol is representative of a corresponding process variable being constrained to a set point at column 16, lines 25-51. Applicant respectfully traverses such assertions and in response asserts that no such graphical symbol provides such a representation.

With respect to claims 15 and 35, Applicants respectfully traverse the Examiner's assertion that "Schaefer et al. also teaches the graphical shape is a circle positioned along the gauge axis (figure 1, column 9, lines 39-66). Applicants respectfully submit that figure 1 and column 9, lines 39-66 of Schaefer fails to show a graphical shape of a circle positioned along the gauge axis, as recited in claim 15 and 35, but rather shows line segments positioned along the "spokes".

The Examiner has also asserted that "Schaefer et al. teaches the graphical shape is a circle positioned along the gauge axis (figure 1, column 9, lines 39-66)" where "[e]lements 9, 10, 11, 12, 13, 14, 15 and 16 are on the circle". Applicants respectfully traverse these assertions. Elements 9, 10, 11, 12, 13, 14, 15 and 16 identified by the Examiner form a "polygon" (e.g., an <u>octagon</u> in the case of Figure 1), and not a circle (see Schaefer Col. 8, lines 38-44). Thus, Schaefer fails to teach or suggest a graphical shape of a circle positioned along the gauge axis, as recited in claim 15 and 35. Only an imaginary circle that is not graphically displayed has such elements which lie thereon. Further, when the Examiner refers to the entire polygon shape as being the graphical symbol, this is also inappropriate as the polygon symbol is not representative of an associated process variable, but the state of the system.

With respect to claims 19 and 41, the Examiner continues to assert "Harrow et al. discloses a matrix display having the manipulated variables displayed along a first axis thereof

and the controlled variables displayed along a second axis thereof, wherein each of the manipulated and controlled variables includes a graphical device displayed in proximity thereto (figure 11B, column 18, lines 16-32)." Applicants respectfully continue to traverse the rejection. Nothing in the references even comes close to showing such a matrix display.

Applicants continue to request that the Examiner provide the Applicants with a location in the cited references which shows the elements that the Applicants assert are missing therein, including but not limited to the matrix display above.

Applicants further respectfully submit that Harrow fails to teach the matrix display as well. The most Harrow teaches is a "graphic display of data" having Cartesian coordinates defining an independent axis "CRC Errors" and a dependent axis "Time" on which a graphical indication of the CRC errors per hour are plotted (Col. 18, lines 16-32). Harrow does not teach or suggest a matrix display with manipulated variables displayed along a first axis and the controlled variables displayed along a second axis, or a graphical device displayed in proximity to each of the manipulated and controlled variables, as recited in claim 19. The same is true with respect to claim 38.

Applicants continue to request that the Examiner provide the Applicants with a location in the cited references which shows the elements that the Applicants assert are missing therein, including but not limited to the matrix display above.

Based on at least the forgoing reasons, Applicants respectfully request reconsideration and allowance of such claims.

<u>Claims 18, 20, 39, and 42</u>

The Examiner has rejected claims 18, 20, 39, and 42 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 4,675,147 to Schaefer *et al.* (hereinafter "Schaefer") in view of U.S. Patent No. 5,375,199 to Harrow *et al.* (hereinafter "Harrow") and further in view of U.S.

Patent No. 5,631,825 to van Weele *et al.* (hereinafter "van Weele"). Applicants respectfully traverse the rejection of each of the claims.

For claims 18, 20, 39, and 42, Applicants respectfully traverse the rejections and repeat the arguments presented above given for the independent claims from which these claims directly or indirectly depend. Such claims are also allowable in view of the limitations thereof.

Applicants respectfully request reconsideration and allowance of claims 18, 20, 39, and 42.

Allowable Subject Matter

Applicants acknowledge the Examiner's indication that claims 14 and 34 are objected to as being dependent on a rejected base claim, but that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants have not rewritten the claims in independent form as Applicants continue to believe that the claims upon which they depend are also in allowable condition.

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. It is requested that the Examiner contact

Applicants' Representatives, at the below-listed telephone number, to discuss the prosecution of this application when it is taken up for consideration.

Respectfully submitted for

Guerlain et al.
By
Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612) 305-1220
Facsimile: (612) 305-1228
Customer Number 26813

5 March 2003
Date

By: [signature]
Mark J. Gebhardt
Reg. No. 35,651
Direct Dial (612)305-1216

CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 5 day of March, 2003, at 4:25 pm (Central Time).

By: Sandy Truehart

Name: SANDY TRUEHART

APPENDIX A - CLAIM AMENDMENTS
INCLUDING NOTATIONS TO INDICATE CHANGES MADE
Serial No.: 09/345,335
Docket No.: 115.00100101

Amendments to the following are indicated by underlining what has been added.

In the Claims

Claims 1, 3-5, 7-21, 23-25 and 27-51 are pending. For convenience, all pending claims are shown below.

1. (Twice Amended) A graphical user display for providing real-time process information to a user for a process that is operable under control of one or more process variables, wherein one or more of the process variables has high and low process limit values associated therewith, the graphical user display comprising one or more graphical devices, wherein each graphical device corresponds to a process variable, wherein at least one graphical device for a corresponding process variable [includes] <u>comprises</u>:

a gauge axis;

a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low limit elements representative of operator set high and low limit values for the corresponding process variable, where the first and second pair of high and low limit elements are displayed on the gauge axis; and

a graphical shape displayed along the gauge axis representative of a value of the corresponding process variable relative to the process limit values.

3. (Twice Amended) The graphical user display of claim 1, wherein the at least one graphical device [includes] <u>comprises</u> a first pair of parallel lines extending orthogonal to the gauge axis representative of the engineering hard high and low limit values for the corresponding process variable and a second pair of pair of parallel lines extending orthogonal to the gauge axis representative of the operator set high and low limit values for the corresponding process variable.

4. The graphical user display of claim 3, wherein a single pair of parallel lines extending orthogonal to the gauge axis represent both the engineering hard high and low limit values and the operator set high and low limit values for the corresponding process variable when the operator set high and low limit values are set at the engineering hard high and low limit values.

5. The graphical user display of claim 3, wherein the second pair of parallel lines extending orthogonal to the gauge axis representative of operator set high and low limit values are displayed at a shorter length than and between the first pair of parallel lines extending orthogonal to the gauge axis representative of engineering hard high and low limit values along the gauge axis.

7. The graphical user display of claim 3, wherein the graphical shape is positioned adjacent one of the first or second pair of high and low limit elements when the value for the corresponding process variable is within a certain range of the engineering hard high and low limit values or the operator set high and low limit values.

8. The graphical user display of claim 3, wherein the graphical shape is positioned outside of the parallel lines of the second pair of high and low limit elements when the value for the corresponding process variable is outside the operator set high and low process limit values by a predetermined percentage.

9. (Once Amended) The graphical user display of claim 1, wherein the graphical device further [includes] <u>comprises</u> a graphical symbol representative of an optimization characteristic for the corresponding process variable.

10. The graphical user display of claim 9, wherein the graphical symbol is representative of a corresponding process variable to be maximized.

11. The graphical user display of claim 9, wherein the graphical symbol is representative of a corresponding process variable to be minimized.

12. The graphical user display of claim 9, wherein the graphical symbol is representative of a corresponding process variable which is to be held at a resting value.

13. (Once Amended) The graphical user display of claim 1, wherein the at least one graphical device further [includes] comprises a graphical symbol representative of the corresponding process variable being constrained to set point.

14. (Once Amended) The graphical user display of claim 1, wherein the at least one graphical device further [includes] comprises a graphical symbol representative of the corresponding process variable being wound up.

15. The graphical user display of claim 1, wherein the graphical shape is a circle positioned along the gauge axis.

16. The graphical user display of claim 1, wherein the graphical shape has a color of a set of colors that reflects the state of the current value for the corresponding process variables.

17. The graphical user display of claim 16, wherein a color for the graphical shape represents one of a current value of the corresponding process variable being within the second pair of high and low limit values, the current value of the corresponding process variable being within a

percentage of one of the second pair of high and low limit values, and the current value of the corresponding process variable being outside of the second pair of high and low limit values.

18. The graphical user display of claim 1, wherein the process is a continuous multivariable process being performed at a process plant, wherein the continuous multivariable process is operable under control of at least manipulated variables and controllable variables of the one or more process variables.

19. (Once Amended) The graphical user display of claim 18, wherein the graphical user display [includes] comprises a matrix display having the manipulated variables displayed along a first axis thereof and the controlled variables displayed along a second axis thereof, wherein each of the manipulated and controlled variables includes a graphical device displayed in proximity thereto.

20. The graphical user display of claim 1, wherein each graphical device displayed is selectable for navigation to more detailed information for process variable corresponding to the selected graphical device, wherein the detail information is displayed on the same screen therewith.

21. (Twice Amended) A computer implemented method for providing a graphical user display for providing real-time process information to a user for a process that is operable under control of one or more process variables, wherein one or more of the process variables has high and low process limit values associated therewith, the method comprising the step of displaying at least one graphical device for a corresponding process variable, wherein displaying the at least one graphical device [includes] comprises:

displaying a gauge axis;

---

displaying a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low elements representative of operator set high and low limit values for the corresponding process variable on the gauge axis; and

displaying a graphical shape along the gauge axis representative of a value of the corresponding process variable relative to the high and low process limit values.

23. (Twice Amended) The method of claim 21 , wherein displaying the first pair of high and low limit elements representative of engineering hard high and low limit values [includes] comprises displaying a first pair of parallel lines extending orthogonal to the gauge axis, and further wherein displaying the second pair of high and low limit elements representative of operator set high and low limit values [includes] comprises displaying a second pair of parallel lines extending orthogonal to the gauge axis.

24. (Twice Amended) The method of claim 21, wherein displaying at least one pair of high and low limit elements [includes] comprises displaying a single pair of parallel lines extending orthogonal to the gauge axis to represent both the engineering hard high and low limit values and the operator set high and low limit values for the corresponding process variable when the operator set high and low limit values are set at the engineering hard high and low limit values.

25. The method of claim 23, wherein the second pair of parallel lines extending orthogonal to the gauge axis representative of operator set high and low limit values are displayed at a shorter length than and between the first pair of parallel lines extending orthogonal to the gauge axis representative of engineering hard high and low limit values.

27. (Twice Amended) The method of claim 23, wherein displaying the graphical shape along the gauge axis [includes] comprises displaying the graphical shape at position adjacent one of the first or second pair of high and low limit elements when the value for the corresponding process variable is within a certain range of one of the high and low process limit values.

28. (Twice Amended) The method of claim 23, wherein displaying the graphical shape along the gauge axis [includes] comprises displaying the graphical shape at position outside of the parallel lines when the value for the corresponding process variable is outside the second pair of high and low elements representative of operator set high and low process limit values by at least a predetermined percentage.

29. (Once Amended) The method of claim 21, wherein the method further [includes] comprises displaying a graphical symbol representative of an optimization characteristic for the corresponding process variable along the gauge axis.

30. The method of claim 29, wherein the graphical symbol is representative of a corresponding process variable to be maximized.

31. The method of claim 29, wherein the graphical symbol is representative of a corresponding process variable to be minimized.

32. The method of claim 29, wherein the graphical symbol is representative of a corresponding process variable which is to be held at a resting value.

---

33. (Once Amended) The method of claim 21, wherein displaying the graphical shape along the gauge axis further [includes] comprises displaying a graphical symbol representative of the corresponding process variable being constrained to set point.

34. (Once Amended) The method of claim 21, wherein displaying the graphical shape along the gauge axis further [includes] comprises displaying a graphical symbol representative of the corresponding process variable being wound up.

35. (Once Amended) The method of claim 21, wherein displaying the graphical shape along the gauge axis [includes] comprises displaying a circle along the gauge axis.

36. (Once Amended) The method of claim 21, wherein the method further [includes] comprises:

determining a state of a current value for the corresponding process variable; and

displaying the graphical shape in a color of a set of colors that reflects the determined state for the corresponding variable.

37. (Twice Amended) The method of claim 36, wherein determining the state of the current value [includes] comprises determining whether the current value of the corresponding process variable is within the second pair of high and low limit values, whether the current value of the corresponding process variable is within a certain percentage of one of the second pair of high and low limit values, and whether the current value of the corresponding process variable is outside of the second pair of high and low limit values.

38. (Once Amended) The method of claim 21, wherein the process is a continuous multivariable process being performed at a process plant, wherein the continuous multivariable is

---

operable under control of at least manipulated variables and controlled variables of the one or more process variables, and further wherein the method [includes] comprises:

displaying a matrix display having the manipulated variables displayed along a first axis thereof and the controlled variables displayed along a second axis thereof; and

displaying a graphical device in proximity to each of the manipulated variables and controlled variables.

39. (Once Amended) The method of claim 21, wherein the method further [includes] comprises:

receiving user input to select a displayed graphical device; and

displaying detailed information for the process variable corresponding to the selected graphical device, wherein the detailed information is displayed on the same screen with the graphical device.

40. (Once Amended) A graphical user display comprising one or more graphical devices for providing real-time process information to a user for a continuous multivariable process being performed at a process plant and operable under control of at least manipulated variables and controlled variables of a plurality of process variables, wherein the graphical user display [includes] comprises a display providing the manipulated variables and the controlled variables, and wherein one or more of the process variables comprise high and low process limit values associated therewith, wherein each of a plurality of the one or more graphical devices corresponds to a process variable, wherein each graphical device corresponding to a process variable comprises:

a gauge axis;

a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low limit

elements representative of operator set high and low limit values for the corresponding process variable, where the first and second pair of high and low limit elements are displayed on the gauge axis; and

a graphical shape displayed along the gauge axis representative of a value of the corresponding process variable relative to process limit values that provides real-time process information to a user for the process, and further wherein each of the plurality of graphical devices is displayed in proximity to one of the manipulated and controlled variables.

41. The graphical user display of claim 40, wherein the display providing the manipulated variables and controlled variables comprises a matrix display having the manipulated variables displayed along a first axis thereof and the controlled variables displayed along a second axis thereof.

42. The graphical user display of claim 40, wherein at least one graphical device displayed is selectable for navigation to more detail information for a process variable corresponding to the selected graphical device, wherein the detail information is displayed on the same screen therewith.

43. A graphical user display for providing real-time process information to a user for a process that is operable under control of one or more process variables, wherein one or more of the process variables has high and low process limit values associated therewith, the graphical user display comprising one or more graphical devices, wherein each of a plurality of the graphical devices correspond to a process variable, wherein at least one graphical device corresponding to a process variable comprises:

a gauge axis;

a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low limit elements representative of operator set high and low limit values for the corresponding process variable, where the first and second pair of high and low limit elements are displayed on the gauge axis;

a graphical shape displayed along the gauge axis representative of a value of the corresponding process variable relative to the process limit values; and

a graphical symbol representative of an optimization characteristic for the corresponding process variable.

44. The graphical user display of claim 43, wherein the graphical symbol is representative of a corresponding process variable to be maximized.

45. The graphical user display of claim 43, wherein the graphical symbol is representative of a corresponding process variable to be minimized.

46. The graphical user display of claim 43, wherein the graphical symbol is representative of a corresponding process variable which is to be held at a resting value.

47. A computer implemented method for providing a graphical user display for providing real-time process information to a user for a process that is operable under control of one or more process variables, wherein one or more of the process variables has high and low process limit values associated therewith, wherein the method comprises displaying a plurality of graphical devices for corresponding process variables, wherein displaying at least one of the graphical devices comprises:

displaying a gauge axis;

displaying a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low elements representative of operator set high and low limit values for the corresponding process variable on the gauge axis;

displaying a graphical shape along the gauge axis representative of a value of the corresponding process variable relative to the high and low process limit values; and

displaying a graphical symbol representative of an optimization characteristic for the corresponding process variable along the gauge axis.

48. The method of claim 47, wherein the graphical symbol is representative of a corresponding process variable to be maximized.

49. The method of claim 47, wherein the graphical symbol is representative of a corresponding process variable to be minimized.

50. The method of claim 47, wherein the graphical symbol is representative of a corresponding process variable which is to be held at a resting value.

51. A computer implemented method for providing a graphical user display for providing real-time process information to a user for a continuous multivariable process being performed at a process plant, wherein the continuous multivariable process is operable under control of at least manipulated variables and controlled variables, wherein one or more of the manipulated variables and controlled variables has high and low process limit values associated therewith, wherein the method comprises displaying a matrix display having the manipulated variables displayed along a first axis thereof and the controlled variables displayed along a second axis thereof, and further wherein the method comprises displaying a graphical device in proximity to

each of the manipulated variables and controlled variables, wherein displaying the graphical device comprises:

displaying a gauge axis;

displaying a first pair of high and low limit elements representative of engineering hard high and low limit values for the corresponding process variable and a second pair of high and low elements representative of operator set high and low limit values for the corresponding process variable on the gauge axis; and

displaying a graphical shape along the gauge axis representative of a value of the corresponding process variable relative to the high and low process limit values.